

SIX GOING ON SEVEN

Database Dictionary

This database dictionary provides a brief explanation of measure naming schemes and mapping used to align the Northwest Power and Conservation Council's (the Council's) 6th Power Plan and utility data, an overview of the Microsoft Access database structure and descriptions of the main queries included in the database.

MEASURE NAMING SCHEMES

The primary purpose of the database is to map all utility data to common measure names so that the savings for each measure can be directly compared to similar measures in the 6th Power Plan. The database table that aligns the utility data to the 6th Power Plan measure names is called the Utility Savings Data table. Each record in the Utility Savings Data table has been assigned an ID that corresponds to two distinct naming schemes. These naming schemes are the following:

1. BPA Taxonomy

Bonneville Power Administration (BPA) developed the BPA taxonomy in an effort to label all measures and projects consistently within its savings database. The BPA taxonomy is similar to how many utilities label their achievement data. The naming structure is hierarchical in nature and has been applied to all of the utility achievement data within the database. The following figure shows the four distinct levels of the BPA taxonomy, beginning with the largest classification:

Sector → End Use → Category → Technology/Activity/Practice (TAP)

2. 6th Power Plan Taxonomy

The other naming convention applied to the savings data table was derived from the the Council's 6th Power Plan. Since the measures within the 6th Power Plan workbook were not assigned end uses, this database uses BPA's Utility Potential Calculator (UPC¹) to assign end uses to each measure. Unlike the BPA taxonomy, the UPC/6th Power Plan labeling is not hierarchical, and categories within the labeling system can overlap. The purpose of including this labeling scheme was to make the utility achievement data directly comparable to the Council's forecast at the building end-use level. End-use labeling for measures in the UPC can span both building systems (e.g. domestic hot water) and technologies (e.g. heat pumps). Therefore, directly mapping the BPA taxonomy to the 6th Power Plan taxonomy is not possible. However, the four levels of measure labeling within the 6th Power Plan taxonomy include the following: sector, end use, measure category, and measure index. While there is some overlap between the two naming conventions, there are many instances where the labeling employed by the 6th Power Plan can be either more or less granular than the similar level employed by the BPA taxonomy.

¹ www.bpa.gov/energy/n/utilities_potential.cfm

DATABASE STRUCTURE DIAGRAM

Figure 1 below shows the relationship between the Utility Savings Data table and the BPA and 6th Power Plan Taxonomy tables. In addition, Figure 2 lists all of the tables that are included in the database.

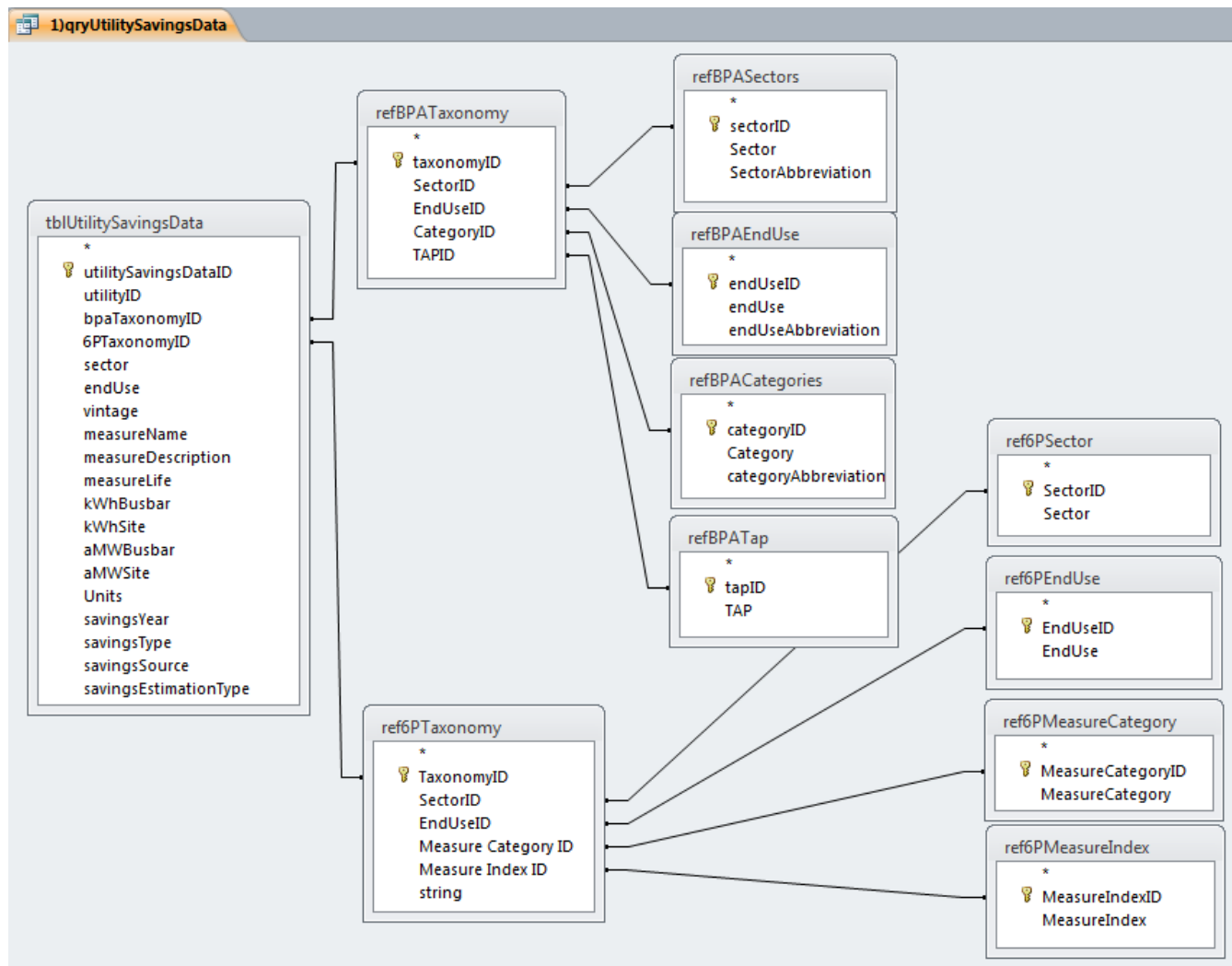


Figure 1. Overview of Database Structure and Relationship between Utility Data and 6th Power Plan

| Tables |
|---------------------------|
| ref6PEndUse |
| ref6PMeasureCategory |
| ref6PMeasureIndex |
| ref6PMeasureName |
| ref6PSector |
| ref6PSub-Sector |
| ref6PTaxonomy |
| refBPACategories |
| refBPAEndUse |
| refBPASectors |
| refBPATap |
| refBPATaxonomy |
| tblSixthPlanPotentialData |
| tblUtilitySavingsData |

Figure 2. List of Database Tables

Table 1 summarizes the database tables and provides a brief description of each table.

| Table Name | Description |
|----------------------------|---|
| ref6PEndUse | This table assigns a unique ID to each 6th Plan end-use defined in the UPC |
| ref6PMeasureCategory | This table assigns a unique ID to each 6th plan Measure Category defined in the UPC |
| ref6PMeasureIndex | This table assigns a unique ID to each 6th plan Measure Index defined in the UPC |
| ref6PMeasureName | This table assigns a unique ID to each 6th plan Measure Name defined in the UPC. For each measure name, this table also includes the following measure characteristics defined in the UPC: assumed ramp rate, lost opportunity or retrofit designation, and a detailed measure description where it exists. |
| ref6PSector | This table assigns a unique ID to each 6th plan Sector defined in the UPC |
| ref6PSub-Sector | This table assigns a unique ID to each 6th plan Sub-Sector defined in the UPC. In the 6th Plan, the sub-sector is consistent with the measure building type, in most instances. |
| ref6PTaxonomy | This table creates a string of unique IDs to capture all possible combinations of 6th Plan sector ID, end-use ID, measure category ID, and measure index ID. |
| refBPACategories | This table assigns a unique ID to each BPA taxonomy Measure Category |
| refBPAEndUse | This table assigns a unique ID to each BPA taxonomy End Use |
| refBPASectors | This table assigns a unique ID to each BPA taxonomy Sector |
| refBPATap | This table assigns a unique ID to each BPA taxonomy Technology, Application or Practice (TAP) |
| refBPATaxonomy | This table creates a string of unique IDs to capture all possible combinations of the BPA taxonomy sector ID, end-use ID, measure category ID, and TAP ID. |
| tblsSixthPlanPotentialData | This table summarizes the 6th Plan savings data and includes the 6th Plan Taxonomy ID, sub-sector, vintage, measure name, energy savings and year from the UPC. |
| tblUtilitySavingsData | This table summarizes the regional utility savings data and includes: BPA Taxonomy ID, 6th Plan Taxonomy ID, sector, end-use, vintage, measure name, measure life, energy savings, and year. |

Table 1. Description of Database Tables

QUERY DESCRIPTIONS

All queries included in the database are summarized in the sub-sections below. Figure 3 lists all of the queries that are included in the database, and queries that are circled in red (1a and 3e) are linked directly to the Microsoft Excel workbook named *Six Going on Seven Workbook*.

Query 1: qryUtilitySavingsData

This query joins the BPA and 6th Power Plan taxonomy IDs for each record in the *Utility Savings Data* table to the *BPA taxonomy* and *6th Power Plan taxonomy* reference tables. These taxonomy tables are each joined to four additional tables that allow each record in the utility savings data table to be labeled with taxonomy descriptions (e.g. measure descriptions) instead of IDs.

Query 1a: qryUtilityDatabyBPATaxonomy

Query 1a summarizes the data from query 1 into annual kWh and aMW busbar savings, by year, for the following BPA taxonomy levels: sector, end use, measure category, and TAP.

Query 1b: qryUtilityDatabyBPAand6PTaxonomy

Query 1b summarizes the data from query 1 into the same categories as query 1a, as well as for the following 6th Power Plan levels: sector, end use, measure category, and measure index.

Query 2a: qryUtilityDataby6PTaxonomy

This query joins the 6th Power Plan taxonomy IDs for each record in the utility savings data table to the 6th Power Plan taxonomy reference table and 6th Power Plan taxonomy descriptions. The annual kWh and aMW savings are summarized by the following 6th Power Plan taxonomy levels: sector, end use, measure category, and measure index.

Query 2b: qry6PDataby6PTaxonomy

This query joins the 6th Power Plan taxonomy IDs for each record in the 6th Power Plan potential data table to the 6th Power Plan taxonomy reference tables and 6th Power Plan taxonomy descriptions. The annual kWh and aMW potential are summarized by year for each of the following 6th Power Plan taxonomy levels: sector, end use, measure category, and measure index.

Query 3a: qryJoin6PUtilityDataby6PTaxonomy

This query joins query 2a and 2b to create a table of savings and 6th Power Plan potential for each sector, end use, measure category, and measure index combination that appear in both query 2a) and 2b).

Query 3b: qryJoin6PUtilityDataby6PTaxonomy (in 6P)

This query joins query 2a and 2b to create a table of savings and 6th Power Plan potential for each sector, end use, measure category, and measure index combination that appear **only** in the 6th Power Plan potential data from query 2b.

Query 3c: qryJoin6PUtilityDataby6PTaxonomy (in Utility)

This query joins query 2a and 2b to create a table of savings and potential for each sector, end use, measure category, and measure index combination that appear only in the utility savings data from query 2a.

Query 3d: UNIONqryJoining3a3b3c

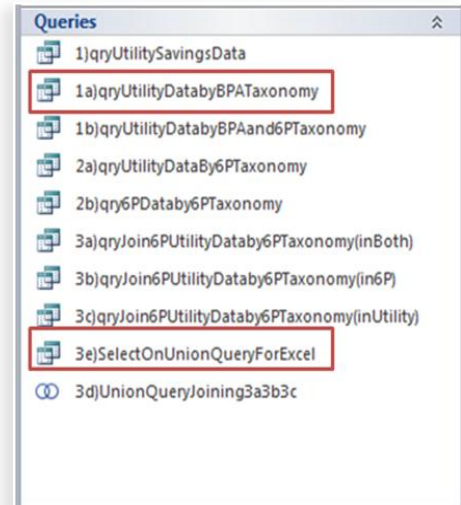


Figure 3. List of Database Tables

This union query joins each unique observation from queries 3a, 3b, and 3c to create a comprehensive table of savings and 6th Power Plan potential for each unique combination of sector, end use, measure category, and measure index that appear in each of the previous three queries 3a, 3b, and 3c.

Query 3e: SelectonUnionQueryforExcel

This select query allows the data in query 3d to be exported to the linked Microsoft Excel workbook. There are no changes to the data between query 3d and query 3e. This query is required so that the data can be easily summarized in the linked workbook.

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